

ABSTRACT OF THE DISCLOSURE

A first resistance value of an electromagnetic transducer is calculated based on an examination current of a first current value. A second resistance value of the electromagnetic transducer is calculated based on the examination current of a second current value different from the first current value. A quantity of variation in temperature is derived based on the first and second resistance values. An expected lifetime of the electromagnetic transducer is calculated based on the derived quantity of variation in temperature. A current value for a sensing current to be supplied to the electromagnetic transducer is determined based on the calculated expected lifetime. It is possible to reliably set the maximum current value for the sensing current without suffering from deterioration or a shortened lifetime of the electromagnetic transducer resulting from a fracturing or destructive phenomenon such as a migration.